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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/026,653

12/27/2001

Masaya Ishida

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06/10/2004

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

CHACKO DAVIS, DABORAH

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/026,653

Applicant(s)

ISHIDA ET AL.

Examiner

Daborah Chacko-Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 3-13, 15, 17, 19-21 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 14, 16, 18 and 22 is/are rejected.
- 7) ☒ Claim(s) 16, 18 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The office action mailed out on March 29, 2004, has been vacated, and the present non-final action (new) is mailed out to correct the errors discussed in the interview summary attached herewith.
2. Applicant's election with traverse of the election of species in Paper No. 10/22/2003 is acknowledged. The traversal is on the ground(s) that the subject matter of all species are sufficiently related that a thorough search of the subject matter of any one species would encompass the search of the subject matter of the remaining species and therefore the search and examination of the entire application can be made without serious burden. This is not found persuasive because each species is patentably distinct and require separate searches. In addition the claims are written so broadly that each species alone encompasses numerous possibilities and therefore a thorough search and examination of the entire application would be a serious burden.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 3-13, 15, 17, 19-21, and 23, are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10/22/2003, and 09/24/2003.

### ***Claim Objections***

4. Claims 16, 18, and 22, are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous

claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 16, 18, and 22, do not recite any limitations for making a semiconductor device, electro-optical device, and electronic device respectively, which would further limit the method of forming a molecular film pattern recited in claim 1. Additionally, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USP 15 (CCPA 1976) and *Kropa v. Robie*, 187 F. 2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 14, 16, 18, and 22, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14, at line 2, recites "the thickness of the molecular film being 3 nm or less". This open-ended range is indefinite because one of ordinary skill in the art, either using teachings from the applicant's specification or the prior art, would not be able to determine the lower endpoint of the range.

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7. Claims 16, 18, and 22, are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. Claims 16, 18, and 22, do not disclose how a semiconductor device (claim 16), an electro-optical device (claim 18), and an electronic device (claim 22) can be manufactured by forming a molecular film pattern according to claim 1. In doing the step recited in either claim 16, or claim 18, or claim 22, i.e., forming a molecular film pattern, one of ordinary skill in the art can only form a molecular film pattern, and therefore a semiconductor device or an electro-optical device, or an electronic device cannot be formed or envisioned. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-2, 14, 16, 18, and 22, are rejected under 35 U.S.C. 102(b) as being anticipated by Jpn. J. Appl. Phys. Vol 32 (1993), "Patterning of Self-Assembled Films Using Lithographic Exposure Tools" (Dressick et al).

Dressick et al., on page 5829, section 1, 6th paragraph, on pages 5830-5831, section 2.1, on page 5831, section 2.2, and in figure 4, discloses a method of manufacturing a molecular film pattern (patterning of organosilane self-assembled

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monolayer, SAF layer on silicon substrate), wherein the organosilane monolayer (less than 1nm thickness) is imaged lithographically by irradiating the SAF layer with deep UV radiations (claims 1, and 14). Dressick et al., discloses a patterning method using organosilane self-assembled monolayers in the manufacture of semiconductor devices. A ligating organosilane self-assembled monolayer is formed on a substrate and exposed to light through a mask to form a pattern (see figure 4 of Dressick et al.). One example of an organosilane disclosed in figure 8 of Dressick et al., is PEDA and meets the limitation of the organic silicon compound (recited in claim 2) when p is an integer of 0 or more, and Z is an amino group (claim 2). Dressick et al., on page 5837, and on page 5838, section 2.4.2, discloses that the method of forming patterned SAF monolayer organosilane films can be used in the manufacture of microelectronic devices (claims 16, 18, and 22).

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published


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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd



June 2, 2004.



**JOHN A. MCPHERSON**  
**PRIMARY EXAMINER**